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EXPLORING THE IMPACT OF MICROFINANCE IN PAKISTAN

SOCIAL POLICY AND DEVELOPMENT CENTRE

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June 2008

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SUMMARY

Much of the impetus behind the large and increasing support from national governments, Non Governmental Organizations (NGOs) and donor agencies for microfinance, hinges on the assumption that its economic and social impacts are significant. However, this needs to be examined more closely. This study evaluates the impact of microfinance programs on income, expenditure, child education and women empowerment. An econometric analysis is carried out to examine the impact with a relatively sizeable sample of about 3,400 respondents (borrowers and non-borrowers) from six large microfinance institutions of Pakistan. Empirical results suggest that microfinance intervention possibly helps in smoothing consumptions and, to some extent, generating income. The results also confirm an upper hand of matured borrowers in terms of child school enrollment as the impact coefficients are positive and significant. The econometrical results regarding women empowerment are mixed, contradictory and in many cases, unexpected. It can be argued, therefore that microfinance interventions do not seem to have a significant positive impact on the different aspects of women empowerment.

1.   INTRODUCTION

The beginnings of the Microfinance[1] sector in Pakistan has its roots in the rural development projects that were funded by donors. The Aga Khan Rural Support Program's development model has been replicated all across Pakistan, and since microcredit became a major instrument in dealing with the problems of the rural poor, it is assumed by all the actors in this sector that principally microcredit should be used to reduce the near 33 percent poverty – much of it rural -- in the country. This central belief, while largely unsupported by data and evidence, informs most of the debate around microfinance in Pakistan. In fact, one can argue as well that research to support or dispel many of the main assumptions about microfinance is woefully lacking and hence many presumptions remain untested, as pointed out clearly by Hussein and Hussain (2003).

Along with poverty alleviation, microfinance in Pakistan has been seen as an important instrument for gender empowerment. The Government of Pakistan (GoP) and various rural support programs in the country feel that by providing credit to women which is used for income generation and consumption, the social and economic status of women in the household and in the community can be improved. This is again one of the accepted truths which has emerged as conventional wisdom about the microfinance sector in Pakistan. However, capturing and measuring 'empowerment' and emancipation is a particularly difficult task.

While there are numerous assumptions about what microfinance can do – poverty alleviation, women empowerment, and eradication of unemployment – there is not sufficient research which supports all these claims. Some partial research, both in Pakistan and abroad, might suggest that microfinance works for some people under certain conditions. But the jury is still out about whether it is really the Magic Bullet.[2] Hence, the need for continuing research and looking at the main assumptions of what microfinance can do becomes essential.

Recently the European Union (EU), under the Pakistan Financial Services Sector Reform (PFSSR) Program, commissioned a study (Zaidi et al, 2007), to assess the social impact of the country's microfinance program. Six large microfinance institutions of Pakistan were selected from a range of sizes, ownership patterns, sources of funding, lending methodology, program area, organizational structure, borrowers and communities to participate in this study. Zaidi et al (2007), explored the impact of specific institutional interventions without pooling the data. The study did not focus on a general, broad, social and economic impact analysis of microfinance interventions in Pakistan.

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[1] The term 'microfinance' has been used interchangeably with 'microcredit' in Pakistan, largely because other services and products in the sector have been far less developed than credit. Savings and insurance, for example, are still in their infancy as far as their provision by microfinance institutions is concerned, and even some microfinance banks have been slow to evolve their savings instruments and potential. Debate about microfinance in Pakistan continues to be largely about microcredit.

[2] See the summary and evaluation of studies conducted in Hussein and Hussain (2003)

This study attempts to quantify and demonstrate some of the outcomes from microfinance interventions using pooled data of about 3,400 respondents. After the first section of introduction, the estimation methodology adopted in this paper is presented in section 2. Section 3 furnishes the details of the institutions and the sample. The results of impact assessment are discussed in section 4, while the last section is reserved for concluding remarks.

2.   ESTIMATION METHODOLOGY

Ideally for impact assessment, baseline studies and panel data are recommended so that one can capture the trend and secular impact of the intervention and can compare before- and after scenarios. But unfortunately, most Microfinance Institutions (MFIs) or researchers do not have such data and make do with cross-sectional data captured at one point in time.

Given that cross-section data was also gathered for this study, and given the non-random placement of the program and some self-selection of households, the 'Difference-in-Difference' (DID) approach used by Bret Coleman (1999), is adapted for this study to assess the impact of microfinance program on various outcomes. The DID technique compares the difference between income (or other variable of interest) for participants and non-participants in treatment sites/locales, with the same difference in income in control sites/locales. This is the best method for undertaking such an exercise and better than taking one which focuses on program participants and new/likely participants. The Pipeline Approach (Single Difference) has an in-built bias as many of the new clients are already 'sold' on the issue of and efficacy of microfinance[3].

Coleman (1999), compares mature microfinance borrowers in treatment areas with new would be borrowers in control areas. This is done to control unobservable factors such as entrepreneurial spirit and risk preferences that lead to selection bias. Non-borrowers have also been included to control for endogenous factors. The logic behind the latter point is that MFI's might view some villages/locales as more entrepreneurial and thus might start lending there before other areas as a prudent business step rather than on a random basis and lead to program placement bias. But looking at the neighbors allows controlling for the heterogeneity in the two areas. According to Coleman (1999), impact can be measured by a single impact equation such as:

$$Y_{ij} = X_{ij}\alpha + M_{ij}\gamma + T_{ij}\delta + e_{ij} \qquad \text{[Equation – 1]}$$

where; Y_{ij} is an outcome on which impact is measured for household i in location j, X_{ij} is a vector of household characteristics, M_{ij} is a membership dummy variable (MEMBER) equal to 1 if household i self-selects (matured borrowers and pipeline borrowers) into the credit program, and 0 otherwise; and T_{ij} is a variable to capture the treatment effects on households that self selected themselves into the program and are already accessing loans (borrowers). M_{ij} can be thought of as a proxy for unobservable characteristics that lead

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[3] See Khan (2004)

households to self-select into an MFI program. The coefficient δ on T_{ij} is the main parameter of interest and measures the average impact of the program. A positive and significant δ would indicate that microfinance is having a beneficial effect on borrowers. Coleman asserts that if program placement is random, then the above equation should yield efficient and unbiased estimates.

Coleman's model is based on the DID methodology which is explicitly designed to overcome the potential ambiguities of the single-difference (borrowers v/s would-be-borrowers). The essence of the DID approach is to try to account for the "other" forces by also examining the outcomes for a control group that does not receive the treatment but that presumably is affected by these other forces. However, DID also has its drawbacks like failure to take into account externalities and spill over effects, and the differencing nets out the effect of the comparison group. In this case, the neighbors.

For this study, the Coleman model is slightly modified. To control for heterogeneity[4] between the two groups specified above and the localities they live in, a dummy variable is introduced. The dummy C is assigned 1 for matured borrowers and matched neighbors and equal to 0 for the pipeline clients and their matched neighbors. Furthermore, instead of assigning one to borrowers for the dummy variable T_{ij}, the number of loans taken (LOAN CYCLE) is used since some borrowers have received program support longer than others. The parameter δ for T_{ij} now measures the impact of per loan received. The final equation which is estimated for DID is as follows:

$$Y_{ij} = X_{ij}\alpha + C_{ij}\beta + M_{ij}\gamma + T_{ij}\delta + e_{ij} \qquad \text{[Equation – 2]}$$

An issue that came up during surveying was that it was difficult to find Pipeline Borrowers as all MFIs in our sample were disbursing new loans within 15 days. Consequently, some of the respondents in the Pipeline category had already received loans and might have increased consumption due to better liquidity. This aspect may lead to a smaller value of δ or the impact reported on the variable of interest.

Moreover, the areas in which our selected MFIs were working were predominantly urban areas. In fact, a large proportion of their work was within the same urban centers of Lahore and Karachi. This caused problems in selecting the control groups and localities as there are almost 90,000 borrowers in Lahore with 66 MFI offices while in Karachi there are over 22,000 borrowers with 46 MFI offices.[5] Therefore, the knowledge and accessibility of microfinance in these areas is enormous. This made it impossible to find areas which were unexposed to microfinance and therefore, the precision of δ might be compromised. However, an effort was made to find control areas where microfinance was not pervasive so that δ could be computed with accuracy.

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[4] Coleman used village characteristics as explanatory variables for controlling the location specific heterogeneity. Because the sample of this study is predominantly urban, it is difficult to get location specific characteristics like a surrounded village.

[5] Pakistan Microfinance Network, "Microwatch: A quarterly update on Microfinance in Pakistan" Issue 01: October 2006

In addition to the DID estimates, Single Difference models which compare the matured borrowers and the pipeline clients only are also estimated as all conditions of the DID model are not strictly met due to problems with data collection as mentioned above. The equation used for estimation of the 'Single Difference' is

$$Y_{ij} = X_{ij}\alpha + T_{ij}\delta + e_{ij} \qquad \text{[Equation – 3]}$$

Where δ is the parameter of interest and captures the impact experienced by borrowers on different outcomes as compared to pipeline clients.

3.   INSTITUTIONS, SAMPLE AND DATA

The MFIs included in this study have been selected on the basis of the following criteria. They have at least three year's continuous work experience in microfinance and a strong business plan for the next three years; they have a portfolio of at least 2,000 active borrowers; have audited accounts for the last three years; and are willing to participate in this social impact assessment study. The main features of the selected MFIs are:

- Orangi Charitable Trust (OCT), urban, Sindh, not simply concerned with poverty alleviation, but also with entrepreneurial and economic development, individual lending;

- Sindh Agricultural and Forestry Coordination Organization (SAFWCO), rural, Sindh, poverty alleviation and income earning focus;

- KASHF, Lahore, Punjab urban, peri-urban, exclusively women, poverty alleviation, gender empowerment, economic security;

- National Rural Support Program (NRSP), largest rural support program in every province of the country, multi-sectoral with microfinance being one of its important activities, as well as NRSP's Urban Poverty Alleviation Project (UPAP);

- AKHUWAT, urban, Punjab, Islamic microfinance provider, based on the zero-interest principle

- ASASAH, Lahore-based MFI, different from the others because its financing structure represents full commercial funding.

At the first stage of sampling, the branches (groups of persons with homogenous socio-economic characteristics) from each microfinance institution were chosen purposely, depending upon the scale of operation, geographical coverage of institution, time constraint and logistics.

At the second stage, regular borrowers were selected randomly from the MFIs record of active borrowers. It included all those who had obtained loans during January 2005 to April 2006, and were paying loan installments. After compilation of data obtained from the MFIs, randomization software[6] was used to draw the sample of active borrowers.

A valid control group is the holy grail of any microfinance impact assessment and must have participants who possess the same 'entrepreneurial spirit' as those in the treatment group that receive the loans. One way is to take new entrants in the MFI program as the Control Group, whereas the veteran participants with two or more years experience with the MFIs are considered to be the Treatment Group. The methodology then attributes any difference between these groups to the MFI, since the new entrants have received little or no treatment from the MFI, but the veterans have received two or more years of loans. This study considers accepted borrowers-to-be (Pipeline Borrowers) as a part of the Control Group. Accepted borrowers, who either have not yet received the loan or received the loan after April 2006, were compiled from the MFI data and a random sample was drawn. To avoid 'contamination' and 'location' biases,[7] non-borrowers[8] were also chosen, both from the project area and from non-project (similar) areas. The random-walk method was adopted to select non-borrowers. Thus, the control group of the study consists 'borrowers-to-be,' non-borrowers from project areas and non-borrowers from new designated project areas or similar non-project areas.

It was decided to list 90 respondents for the Control Group from each selected MFI branch (project area). The Control Group includes 30 new borrowers or accepted borrowers (Pipeline Borrowers), 30 non-borrowers from same (project) area and 30 non-borrowers from project designated new areas or project-similar areas. For comparison, a sample of 80 active borrowers (treatment group) was drawn. Thus, a total of 170 respondents[9] were chosen from each MFI selected branch.

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[6] www.randomizer.org

[7] See Mosley (1998)

[8] In the urban areas, a related issue was the selection of sample of non-borrowers since it was difficult to differentiate between the treatment and control neighborhoods or communities. However, using the best of field supervisor knowledge and local wisdom, an attempt was made to identify similarities.

[9] Based on standard parameters of a 95 percent level of significance (Z_α=1.645) and 80 percent power (Z_β = 0.84) and assuming a variance 0.25 and 10 percent of tolerance error, a sample of 154 respondents per branch of MFI emerged from the following standard formula for determining optimal sample size: **$n = (Z_{\alpha+} Z_\beta)[\sigma^2/\delta^2]$.** The variance is ideally applied in sample size determination by information available from other surveys (or pilot surveys) that have been conducted in a similar setting. Unfortunately, it is difficult to find out a systematic study in the Pakistani context showing the mean and variances of various microfinance impact indictors. Therefore, in the absence of any prior value or judgment regarding the variance of any impact indicator, the variance used for binary outcomes $[(P_1) (1-P_1)]$ is considered in the above formula. A value of 0.5 for P_1 is recommended because the variance of indicators that are measured as proportions reach their maximum as they approach 0.5. This will ensure an adequate sample size irrespective of what the actual value of P_1 is. Nonetheless, this may also result in samples that are larger than needed in the event that the actual value of P_1 is very different from 0.5.

In order to ensure that the target sample size for the survey was reached, allowances for non-response and non-traceability are usually made during the calculation of sample sizes. This normally involves increasing the sample size by a non-response insurance factor. For this survey, the sample was drawn with the allowance of 20 percent. The realized sample information is provided in Table 3.1.

TABLE – 3.1 STUDY SAMPLE						
			Respondent Category			
			Borrowers		**Non-Borrowers**	
	Branches	**Total**	**Matured or Regular**	**Pipeline or Borrowers-to-be**	**Project Areas**	**Similar non-project areas**
Overall Sample	20	3393	1599	588	601	605
Microfinance Institutions						
OCT	1	170	81	29	30	30
SAFWCO	3	505	241	85	89	90
AKHUWAT	2	340	160	60	60	60
ASASAH	3	510	238	92	90	90
KASHF	3	510	239	91	90	90
NRSP	4	680	324	108	118	130
UPAP*	4	678	316	123	124	115
* UPAP is the urban project of NRSP						

To capture the differences in household living standard of borrowers and non-borrowers in the treatment and control sites/locales, a structured questionnaire was administered to both groups. The information was collected in various socio-economic dimensions including demographic structure, work and health status, literacy and school enrolment, sources of income, food and non-food consumption expenditure, value of assets, debt and savings.

The other category of information pertained to women empowerment. The perceptions of female borrowers and female non-borrowers regarding role of women in household economic decision-making, purchasing power, financial independence, control on income and savings and control on loan are also collated.[10] For the purpose of quantification and comparison, a constant 1 is assigned to each decision for which respondent affirmed her role in the decision making process. The score of a particular aspect is obtained by summing up across all types of decisions in that category.

The impact of microfinance intervention is scrutinized with reference to the following outcome variables, which are used as dependent variables in the impact estimation model described in section two.

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[10] A list of specific questions asked for determining women perception on empowerment for each decision-making category is provided in Appendix – A.

Income and Expenditure:
     Household Expenditure (Per Capita)
     Household Income (Per Capita)
     Respondent Income
     Household Asset Score[11]
     Household Expenditure on Education
     Household Expenditure on Health
Child Education:
     Percentage of School Going Children (6-15 Years)[12]
     Percentage of School Going Girls (6-15 Years)
Women Empowerment:
     Economic Aspects
     Income and Expenditure
     Asset Transactions
     Education and Health
     Social Aspects

Household demography (family size, dependency ratio and children 6-15 years), characteristics of head of household (age, educational attainment), household wealth (asset score), percentage of school going children (6-15 years), and number of earners are used to explain the impact outcome variables. Three dummy variables are also used to control for the location (rural-urban) differences, household poverty status (households below official[13] poverty line) and differences in the gender of head of household (female headed household). These explanatory variables have been evaluated in terms of theoretical justification (cause-affect relationship) to enter in a specific impact equation.

As pooled data of microfinance institutions are used for the impact analysis in this study, institutional dummies are included for controlling the variances among institutions in terms of geographical coverage, scale and length of operation, financial structure, lending procedure etc.

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[11] A constant 1 is assigned to each of the assets owned by the household, and the assets score is obtained by summing up across all assets at the household level. Of course, uniform allocation of score irrespective of the asset characteristics tends to smooth out the distribution of assets across households. To the extent that these assets have different values and all exhibit different rates of depreciation, uniform allocation might even increase the distortion in the distribution of household assets. But what actually matters in this construction is the ownership of assets by a household and not so much the values of the asset which are difficult to estimate accurately from surveys.

[12] Due to data constraints, 6-15 years age-cohort is used in the denominator to compute enrollment ratio up to the matriculation level. In the survey, the numbers of family members (male and female, separately) were collated in the following age-cohort: upto 5 years, 6-15 years, 16-30 years, 31-65 years and above 65 years.

[13] The poverty line quoted in Montgomery (2005), is used to determine household poverty status.

4.   EMPIRICAL FINDINGS

The literature on Impact Assessment methodologies underscores the pitfalls of undertaking studies in which an attempt is made to observe, leave alone quantify, the 'impact' of any intervention in order to address poverty or any other goals. In the case of softer measures of impact, such as empowerment or social capital, there are far greater words of caution, as not only are such changes difficult to observe and quantify, they may take many years to change.[14]   Therefore, the experts of impact assessment caution researchers about making grand statements and reaching firm and final conclusions based on the quantification and estimation of many measurables. In the case of softer indicators they are doubly cautious and suggest that one always needs to be tentative in making conclusions. With these words of caution, the empirical findings based on the estimated impact assessment models are discussed below.

While the detailed econometrical results of DID estimates (Equation 2) are provided in Appendix B, the coefficient (δ) of impact variables T_{ij} are summarized in Table 4.1. For comparative purposes, the table also produces the magnitude of coefficients of impact variable estimated in the single difference model (Equation 3).

The estimated equations are statistically significant in terms of F-value. Nonetheless, the adjusted R-Square, which is a measure of goodness of fit, is low – especially in equations explaining women empowerment. Generally, the signs (direction) of the coefficient of explanatory variables appear in accordance to a-priory expectations.[15]   The multicolinearity among independent variables, which makes the coefficients statistically less efficient and insignificant, is tested through the condition index. The index value greater than 30 indicates severity of multicolinearity and points to the less reliability about the magnitude of the coefficients. The estimated results however, indicate that the value of the condition index is less than 30 in all equations. Having illustrated the summary statistics of estimated impact equations, some observations regarding the impact coefficients are in order.

Significant and positive impact coefficients associated with household expenditure, respondent and household income and household assets are evident in Table 4.1. The coefficients related with these variables in single difference (matured v/s pipeline borrowers) model are also statistically significant. These results indicate a relatively better-off position of microfinance matured borrowers. However, one would be cautious in linking these results with the role of microfinance in reducing poverty.[16]   Almost all the MFIs state that they are in the business of poverty alleviation. In their Mission and

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[14] See Holvoet, 2005; Mahmud, 2003; and Mayoux, 2001

[15] The only exception is the coefficient associated with the dummy variable representing poor households in women empowerment equations. It appears that women in poor households are relatively more empowered as compared to those in non-poor households. Although insignificant in three out of five empowerment equations, the positive sign is contradictory, according to prior expectations.

[16] Most studies on microfinance interventions across the world have shown that the poor are often by-passed, ignored or over-looked, and the clients of many well-known MFIs, are above the poverty line.

Vision statements, they all state that their microfinance are all for the poor and that their clientele is also from 'the poor.' The problem then, is around the definition of the notion of 'the poor.' All MFIs carry out some sort of in-house 'poverty assessment test,' where they identify localities and people whom they consider to be poor. By these criteria, they may actually be targeting those whom they call 'the poor.' However, if an objective criterion for poverty is used, such as the GoP's Official Poverty Line – Rs 1,000 per capita – then, very few clients can officially be called poor.[17] The survey results show that only 25 percent of borrowers are below the Official Poverty Line.

	TABLE – 4.1 **MAGNITUDE AND SIGNIFICANCE OF** **ESTIMATED IMPACT COEFFICIENT (δ)**			
	Difference-In-Difference *[Equation 2]*		*Single Difference* *[Equation 3]*	
Program Outcomes **(Dependent Variables)**	**Old Borrowers v/s** **New (Pipeline) and** **Non-Borrowers**		**Old Borrowers v/s** **New (Pipeline) Borrowers**	
	Coefficient	**Significance**	**Coefficient**	**Significance**
Income and Expenditure:				
Household Expenditure (Per Capita)	.010	.075*	.009	.055*
Household Income (Per Capita)	.046	.000*	.035	.000*
Respondent Income	.074	.000*	.062	.000*
Household Asset Score	.105	.012*	.134	.000*
Household Expenditure on Education	.017	.406	.017	.354
Household Expenditure on Health	.004	.778	.016	.164
Child Education:				
School Going Children	.963	.001*	.916	.000*
School Going Girls	.681	.180	.725	.101
Women Empowerment:				
Economic Aspects	.068	.304	.020	.716
Income and Expenditure	-.023	.484	-.038	.159
Asset Transactions	.063	.046*	-.017	.497
Education and Health	.079	.132	.042	.340
Social Aspects	.127	.001*	-.016	.614
* Significant at least at 10%				

The program impact on household expenditure on education and health do not appear statistically significant in both models (DID as well as Single-Difference). The positive signs of impact coefficient, however, indicate a general tendency of more spending on education and health by borrowers.

An encouraging feature regarding child schooling (upto Matric level) can be observed in Table 4.1. The impact coefficient associated with 'School Going Children' is positive and statistically significant in both models, indicating the clear edge of borrowers

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[17] Perhaps the longitudinal data is more relevant to confirm the role of microfinance in reducing poverty. As this study uses cross-section and one-time data, the testing of the hypothesis is difficult.

towards this social aspect. Unfortunately, the phenomenon is absent in case of 'School Going Girls'.

Generally, the estimated results show that microfinance interventions do not seem to have a significant impact on the different aspects of women empowerment. Moreover, in case of empowerment related with 'Income and Expenditure' the impact coefficient is negative, indicating that borrowers are less empowered, relative to non-borrowers. The impact coefficient in DID estimates for the empowerment categories of 'Assets' and 'Social Aspects' appear significant. However, none of the empowerment category is showing significant impact in the Single-Difference model. Also surprisingly, some impact coefficients are negative.

Changes in Empowerment take much time and social conditions inhibit improvement more so than in the case of income enhancement. One still needs to examine this area more carefully. To address this issue, impact assessment DID equations are estimated separately for two relatively old microfinance institutions: KASHF (started in 1996) and NRSP (established in 1991). KASHF provides loans exclusively to women of urban and peri-urban areas, while NRSP provide finances to the rural poor. The estimated impact coefficients are presented in Table 4.2.

TABLE – 4.2 MAGNITUDE AND SIGNIFICANCE OF ESTIMATED IMPACT COEFFICIENT (δ) [*DID Estimates – Equation 2*]				
Program Outcomes (Dependent Variables)	**KASHF [Urban and Peri-Urban]**		**NRSP [Rural]**	
	Coefficient	**Significance**	**Coefficient**	**Significance**
Income and Expenditure:				
Household Expenditure (Per Capita)	.031	.003*	.001	.982
Household Income (Per Capita)	.029	.002*	.140	.000*
Respondent Income	.051	.001*	.247	.000*
Household Asset Score	.116	.066*	-.163	.088*
Household Expenditure on Education	.026	.579	.076	.090*
Household Expenditure on Health	.017	.422	.083	.010*
Child Education:				
School Going Children	.964	.075*	1.097	.054*
School Going Girls	1.033	.242	.108	.925
Women Empowerment:				
Economic Aspects	-.188	.042*	.026	.957
Income and Expenditure	-.093	.044*	.126	.578
Asset Transactions	.020	.608	.128	.493
Education and Health	.046	.578	-.133	.614
Social Aspects	.105	.033*	.024	.902
* Significant at least at 10%				

In case of the KASHF microfinance institution (urban and exclusively for female), the impact coefficients related with income and expenditure generally depict similar patterns in term of statistical significance as they appear in overall estimates (Table 4.1). However, regarding impact on empowerment, striking results are estimated from DID equation. KASHF borrowers scored significantly less than the pipeline borrowers and non-borrowers in two empowerment categories. Nonetheless, KASHF borrowers show a significantly higher score in 'Social Aspect' category of decision making. The rural phenomenon regarding women empowerment is quite different. The results of NRSP (the oldest rural financing institution in Pakistan) clearly indicate that there is no significant difference in the perception of empowerment among matured borrowers and the group of borrowers-to-be and non-borrowers. Thus, a final conclusion regarding women's empowerment is difficult to draw.

4.   CONCLUDING REMARKS

About 3,400 in-depth personal interviews were conducted with matured microfinance borrowers as well as new, pipeline and non borrowers from six large microfinance institutions during 2007. The MFIs that participated in the study of social impact assessment comprise the Orangi Charitable Trust (OCT), Sindh Agricultural and Forestry Coordination Organization (SAFWCO), KASHF Foundation, National Rural Support Program (NRSP), as well as NRSP's Urban Poverty Alleviation Project (UPAP), AKHUWAT and ASASAH. This study attempts to explore the impact of microcredit on income and expenditure, child education and on women empowerment levels.

Coleman (1999), DID model is applied to assess the impact by netting out the differences between matured borrowers and the group of new, borrowers-to-be and non borrowers. Also, the conventional single difference (borrower v/s borrowers-to-be) model is also applied as all conditions of the DID model are not strictly met due to problems with sampling and data collection.

Empirical results based on the DID model tentatively suggest that microfinance intervention possibly helps in smoothing consumption, especially in urban areas and in generating income. The results also confirm an upper hand of matured borrowers in terms of child (boys only) school enrollment as the impact coefficients are positive and significant. No significant differences between borrowers and non-borrowers are evident regarding the expenditure on education and health and also girls schooling.

The overall surprising result from the survey has been the finding that the microfinance interventions do not seem to have a significant positive impact on different aspects of women empowerment. The results are 'mixed', contradictory, and probably in many cases, surprising and unexpected. Therefore, it is hard to conclude; even tentatively, that microfinance has any role in empowerment.

Finally, along with the repeated caution about comparison, there is greater concern about observing, leave alone measuring, impact. All previous studies which have examined

'impact' warn about problems with data and methodology. This is why there have been so few impact assessments of microfinance interventions, and the ones that have been conducted have all been criticized for some short-coming or the other. Perhaps the main reason why impact assessment studies have been difficult is that it takes many years before impact can be observed and quantified, if at all, convincingly.

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APPENDIX – A

TABLE – A.1 WOMEN PERCEPTIONS REGARDING HOUSEHOLD DECISION MAKING [ECONOMIC ASPECTS]
Indicators:
Do you take decisions on the aspects of purchase, construction, modification or repair of house?
Does your husband discuss with you when a decision on construction/modification/repair of house is made?
Do you take decisions on the purchase or sale of livestock?
Did your husband discuss with you before sale or purchase of livestock?
Do you purchase dresses for the family?
Do you purchase utensils for your family?
Do you purchase gold and jewellery for your family?
Do you take decisions on borrowing money?
Do your husband discuss with you issues of borrowing money?
Do you spend the money you have borrowed?
Do you repay the money you have borrowed?
Do you take decisions on transactions involving household equipment?
Do you have any debt in your name?
Does your husband discuss with you when he has incurred the debt?

TABLE – A.2 WOMEN PERCEPTIONS REGARDING HOUSEHOLD DECISION MAKING [INCOME and EXPENDITURE]
Indicators:
Do you have your own income?
Do you spend it for the family yourself?
Do you need the permission of your husband to spend your income?
Do you get any part of your family income or husband's income in your hands regularly?
Do your husband discuss with you when he spends income for the family or his own requirements?

Table – A.3 Women Perceptions Regarding Household Decision Making [ASSET TRANSACTIONS]
Do you possess any household asset?
Do you have cash savings in your own name?
Do you operate a bank account in your name?
Do you pledge, sell, or exchange any of the above said assets yourself?
Do your need permission from your husband to sell, pledge, exchange any of the assets?
Do you have or have you purchased land in your own name?
Is the house you stay in registered in your name?
Is the house you stay in registered in your and your husband's name?

TABLE – A.4
WOMEN PERCEPTIONS REGARDING HOUSEHOLD DECISION MAKING
[EDUCATION AND HEALTH]

Do you take decisions on the issues of your children's education?
Does your husband consult you when he takes decisions on the education of your children?
Do you think you can decide on how many children you can have?
Do you think you can decide on the spacing between children?
Do you think you can decide on the treatment of your illness or illness of your family member?
Do you think you can decide on the method of treatment for your family members?
Do you think you can decide on the type of contraceptive to be used?
Does your husband discuss with you issues of health aspects of children?
Do you have any choice of food prepared and served in your home?
Are you able to take care of the nutritional requirements of your self, family and children?

TABLE – A.5
WOMEN PERCEPTIONS REGARDING HOUSEHOLD DECISION MAKING
[SOCIAL ASPECTS]

Are you free to go out and visit your friends and relatives without permission?
Do you have the choice of the dresses you wear?
Does your husband impose his religious beliefs on you and make you accept them?
Do you have any association with political parties?
Do you participate in voting and other democratic procedures?
Does your husband impose his political ideas on you and make you accept them?
Do you participate in the meetings of NGO's programs (other social events) in your locality?
Does your husband prevent you from participating in such programs?
Do you take decisions on the marriage of your son/daughter?
Does your husband discuss with you issues of the marriage of your son/daughter/close relative?

APPENDIX – B

TABLE – B.1 DID REGRESSION ESTIMATES – EQUATION 2				
Impact Variable	**Log (Per capita Household Expenditure)**		**Log (Per capita Household Income)**	
Explanatory Variables:	**Coefficient**	**Significance**	**Coefficient**	**Significance**
(Constant)	7.255	.000	7.535	.000
Family Size	-.085	.000	-.088	.000
Dependency Ratio	.000	.000	.000	.000
Education of Head of Household	.035	.000	.067	.000
Age of Head of Household	.000	.473	-.002	.097
Female Headed Household	-.052	.016	-.048	.138
Number of Earners	.071	.000	.160	.000
Household Asset Score	.026	.000		
Loan Cycle	.010	.075	.046	.000
Member	.059	.000	.026	.230
C – Dummy Variable	-.005	.754	-.046	.037
OPP	.158	.000	.545	.000
SAFWCO	-.255	.000	-.087	.021
NRSP	-.164	.000	-.009	.826
AKHUWAT	.033	.144	.090	.008
ASASAH	.010	.599	.142	.000
KASHF	.097	.000	.175	.000
Location Dummy (Urban=1)	.125	.000	.041	.262
Adjusted R^2	.515		.292	
F – Value	212.6		88.2	
Condition Index	23.9		22.0	

TABLE – B.2 DID REGRESSION ESTIMATES – EQUATION 2				
Impact Variable	**Log (Respondent Income)**		**Household Asset Score**	
Explanatory Variables:	**Coefficient**	**Significance**	**Coefficient**	**Significance**
(Constant)	8.131	.000	5.243	.000
Family Size	.065	.000	.073	.000
Dependency Ratio	.000	.014	-.002	.000
Education of Head of Household	.078	.000	.503	.000
Age of Head of Household	-.001	.419	.011	.019
Female Headed Household	-.122	.009	-.315	.048
Number of Earners	-.292	.000	.182	.001
Loan Cycle	.074	.000	.105	.012
Member	.014	.661	.122	.259
C – Dummy Variable	-.067	.034	.123	.256
OPP	.738	.000	.481	.024
SAFWCO	-.268	.000	-.946	.000
NRSP	-.101	.104	1.036	.000
AKHUWAT	.216	.000	-.328	.052
ASASAH	.198	.000	.397	.007
KASHF	.215	.000	-.190	.194
Location Dummy (Urban=1)	-.001	.983	.378	.037
Adjusted R^2	.228		.143	
F – Value	61.2		36.3	
Condition Index	22.0		22.0	

TABLE – B.3 DID REGRESSION ESTIMATES – EQUATION 2				
Impact Variable	**Log (Expenditure on Education)**		**Log (Expenditure on Health)**	
Explanatory Variables:	**Coefficient**	**Significance**	**Coefficient**	**Significance**
(Constant)	4.885	.000	4.738	.000
Family Size			.041	.000
Children 5-14 Years	.065	.000		
Education of Head of Household	.099	.000	.012	.312
Age of Head of Household	.007	.005	.003	.030
Female Headed Household	.101	.211	.031	.572
Household Asset Score	.062	.000	.017	.004
Household Below Poverty Line	-.302	.000	-.134	.000
Loan Cycle	.017	.406	.004	.778
Member	-.005	.926	-.032	.383
C – Dummy Variable	-.007	.888	.051	.165
OPP	.373	.000	.342	.000
SAFWCO	-.381	.000	.363	.000
NRSP	-.044	.654	.496	.000
AKHUWAT	.266	.001	.025	.662
ASASAH	-.348	.000	-.416	.000
KASHF	-.179	.018	-.558	.000
Location Dummy (Urban=1)	.185	.035	.262	.000
Adjusted R^2	.169		.195	
F – Value	25.6		43.5	
Condition Index	23.6		22.8	

TABLE – B.4 DID REGRESSION ESTIMATES – EQUATION 2				
Impact Variable	**School Going Children (%) [6-15 Years]**		**School Going Girls (%) [6-15 Years]**	
Explanatory Variables:	**Coefficient**	**Significance**	**Coefficient**	**Significance**
(Constant)	105.936	.000	106.164	.000
Family Size	-.891	.000	-1.594	.000
Children 5-14 Years	-.052	.000	-.065	.000
Education of Head of Household	.705	.004	.588	.175
Age of Head of Household	-.082	.008	-.108	.051
Female Headed Household	-1.714	.117	.413	.832
Household Asset Score	.238	.047	.141	.511
Household Below Poverty Line	-1.673	.030	-1.844	.180
Loan Cycle	.963	.001	.681	.180
Member	-2.732	.000	-3.404	.010
C – Dummy Variable	.003	.996	.884	.505
OPP	.553	.707	2.459	.347
SAFWCO	-2.973	.022	-4.048	.080
NRSP	.724	.620	.793	.761
AKHUWAT	-2.009	.078	-3.802	.061
ASASAH	-2.873	.004	-3.528	.046
KASHF	-2.434	.015	-2.289	.198
Location Dummy (Urban=1)	1.348	.281	4.631	.038
Adjusted R^2	.138		.090	
F – Value	32.8		20.7	
Condition Index	23.7		23.7	

TABLE – B.5 DID REGRESSION ESTIMATES – EQUATION 2				
Impact Variable	Women Empowerment [Economic Aspect]		Women Empowerment [Income and Expenditure]	
Explanatory Variables:	Coefficient	Significance	Coefficient	Significance
(Constant)	7.174	.000	3.578	.000
Education of Head of Household	-.069	.326	-.041	.243
Age of Head of Household	.002	.789	-.007	.062
Household Asset Score	.074	.013	-.023	.122
Household Below Poverty Line	.472	.009	.237	.008
Loan Cycle	.068	.304	-.023	.484
Member	2.583	.000	-.026	.764
C – Dummy Variable	-.147	.417	.003	.975
SAFWCO	.692	.052	.655	.000
NRSP	-.353	.336	-.097	.595
AKHUWAT	-1.179	.001	-.766	.000
ASASAH	-2.110	.000	-.951	.000
KASHF	-2.047	.000	-.758	.000
Location Dummy (Urban=1)	-.562	.111	.109	.536
Adjusted R^2	.268		.116	
F – Value	53.9		20.5	
Condition Index	23.6		23.6	

Table – B.6 DID Regression Estimates – Equation 2				
Impact Variable	Women Empowerment [Asset Transactions]		Women Empowerment [Education and Health]	
Explanatory Variables:	Coefficient	Significance	Coefficient	Significance
(Constant)	1.462	.000	6.265	.000
Education of Head of Household	.063	.060	.117	.037
Age of Head of Household	.007	.065	-.023	.000
Household Asset Score	-.031	.030	.022	.363
Household Below Poverty Line	.110	.198	.210	.144
Loan Cycle	.063	.046	.079	.132
Member	.119	.158	.095	.501
C – Dummy Variable	-.333	.000	-.248	.085
SAFWCO	1.618	.000	.279	.325
NRSP	.396	.023	-.037	.898
AKHUWAT	.194	.229	.317	.242
ASASAH	.187	.035	-1.162	.000
KASHF	.085	.329	-1.230	.000
Location Dummy (Urban=1)	-.145	.386	1.005	.000
Adjusted R^2	.116		.083	
F – Value	20.4		13.3	
Condition Index	23.6		23.6	

TABLE – B.7 DID REGRESSION ESTIMATES – EQUATION 2		
Impact Variable	**Women Empowerment** **[Social Aspects]**	
Explanatory Variables:	**Coefficient**	**Significance**
(Constant)	4.304	.000
Education of Head of Household	.068	.080
Age of Head of Household	.006	.201
Household Asset Score	.028	.084
Household Below Poverty Line	.141	.158
Loan Cycle	.127	.001
Member	.326	.001
C – Dummy Variable	-.591	.000
SAFWCO	.389	.048
NRSP	-.420	.039
AKHUWAT	.141	.453
ASASAH	-.200	.053
KASHF	-.190	.063
Location Dummy (Urban=1)	-.379	.053
Adjusted R^2	.051	
F – Value	9.0	
Condition Index	23.6	